

# שירותי מזון

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## DISASSEMBLY FOR REPAIR

1. Fader pc board (X11 A/6) can be removed without removing the panel ass'y. When replacing the components on the pc boards, it is recommended to remove the panel ass'y before disassembly. The other pc boards can be removed, all attached to the sub panel, by the following procedures.

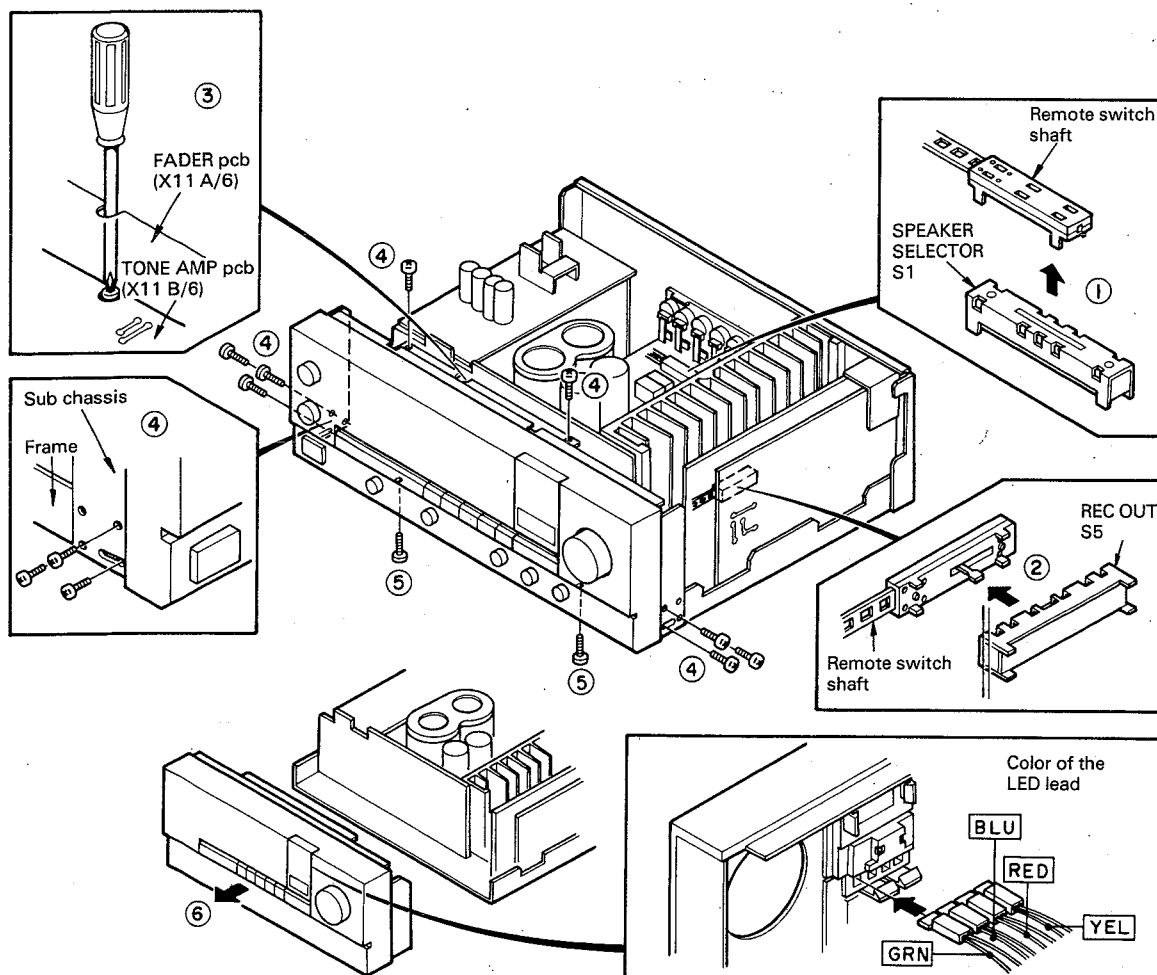
In the figure below, the panel ass'y is kept on to show that disassembly can be done without removing panel ass'y.

2. Pull the remote switch shaft of SPEAKER selector S1 and REC OUT selector S5 up to disengage them from the switches (①, ②).

**NOTE:** Do not change the position of the selector knobs after removing the remote switch shaft. If changed, either the remote switch shaft can not be plugged in or the position of the switch and the selected indication on the panel ass'y will not match. Also, be careful of the remote switch shaft. If the covering of the remote switch shaft (the blue plastic part) breaks, the switch can not be operated.

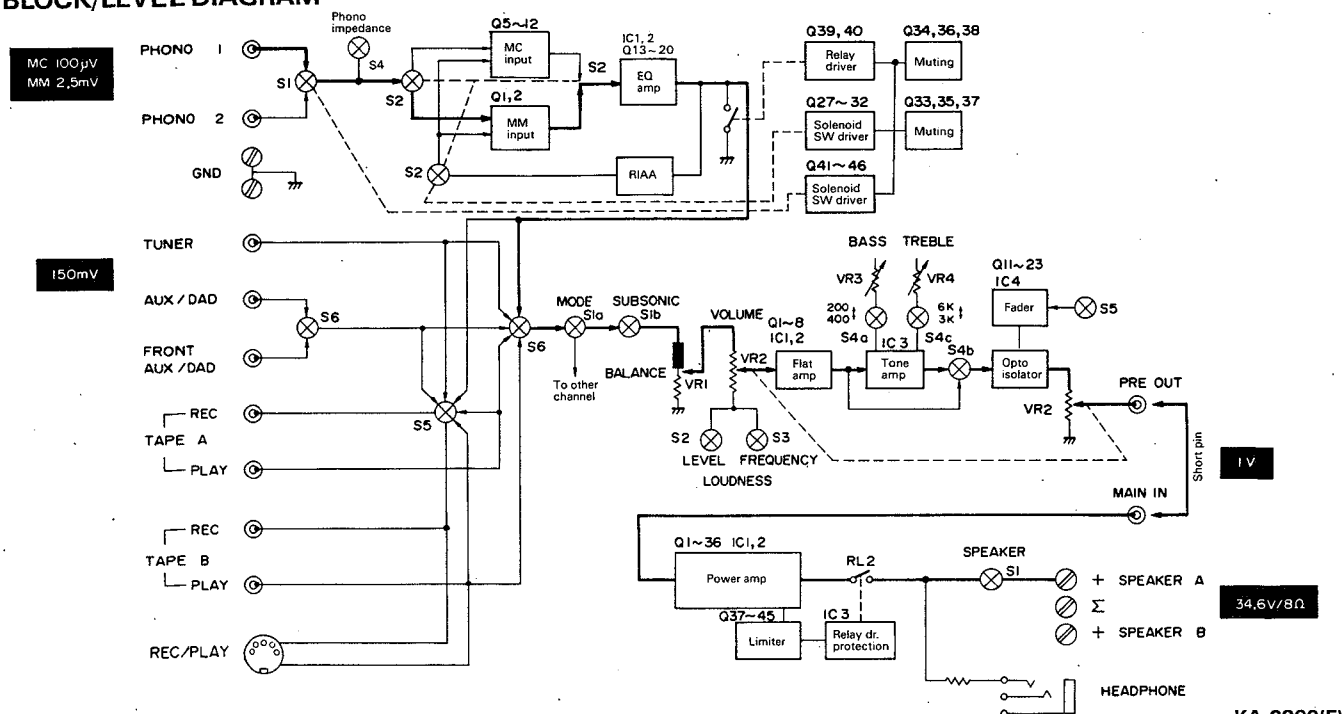
3. Insert a screw driver through the round cutting of FADER pc board (X11 A/6) and remove the screw on the TONE AMP pc board (X11 B/6) (③).
4. Remove 2 backmost screws on the FADER pc board and 6 screws on the sides of the sub panel (④).
5. Remove 2 screws right behind the panel ass'y on the bottom plate (⑤).
6. In this condition, the following pc boards will be separated all attached to the sub panel.

The pc boards are, FADER (X11 A/6), FADER SWITCH (X11 D/6), VOLUME (X11 C/6), PHONO 1/2, MM/MC SWITCH (X08 B/10), SELECTOR (X08 C/10), TONE AMP (X11 B/6), HEADPHONE (X08 H/10), FRONT/REAR AUX/DAD (X11 E/6, F/6).



## BLOCK/LEVEL DIAGRAM/ADJUSTMENT

## BLOCK/LEVEL DIAGRAM



KA-2200(E)

## ADJUSTMENT

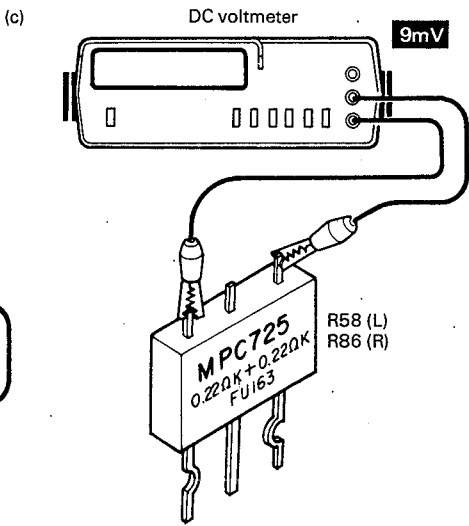
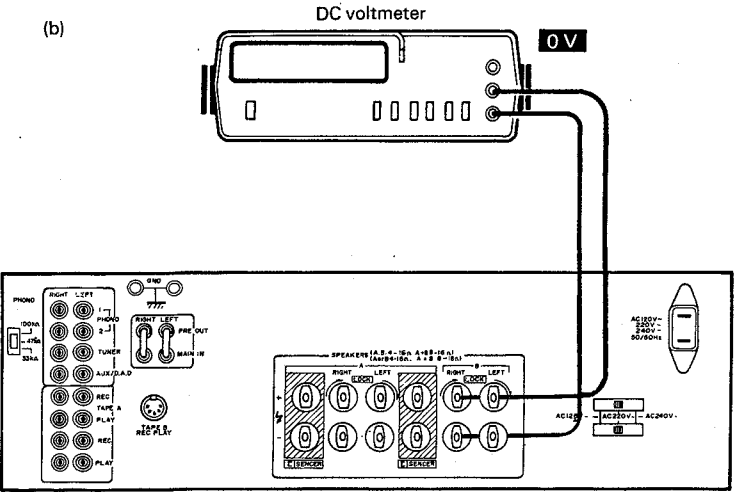
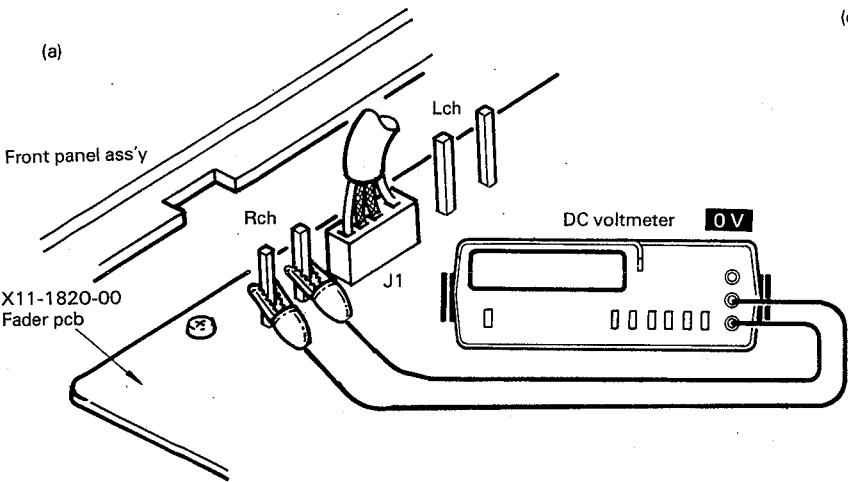
| NO.  | ITEM                          | INPUT SETTINGS | OUTPUT SETTINGS                                  | AMPLIFIER SETTINGS | ALIGNMENT POINTS   | ALIGN FOR | FIG. |
|--|-------------------------------|----------------|--|--------------------|--------------------|-----------|------|
| Unless otherwise specified, the individual switches should be set as follows:<br>SPEAKER: B    REC OUT: OUT    SELECTOR: PHONO |                               |                |  |                    |                    |           |      |
| 1  | OFFSET<br>(X11-1882-71)       | —              | Connect a DC voltmeter to TP of X11 A/6.         | MM/MC: MM          | VR5 (L)<br>VR6 (R) | 0V        | (a)  |
| 2  | OFFSET<br>(X07-2032-71)       | —              | Connect a DC voltmeter to SPEAKER B terminal.    | VOLUME: 0          | VR1 (L)<br>VR2 (R) | 0V        | (b)  |
| 3  | IDLE CURRENT<br>(X07-2032-71) | —              | Connect a DC voltmeter across R85 (L)<br>R86 (R) | VOLUME: 0          | VR3 (L)<br>VR4 (R) | 9 mV      | (c)  |

## REGLAGE

| N°  | ITEM                    | REGLAGE DE L'ENTREE | REGLAGE DE LA SORTIE   | REGLAGE DE L'AMPLIFICATEUR | POINTS DE L'ALIGNMENT | ALIGNER POUR | FIG. |
|---|-------------------------|---------------------|--|----------------------------|-----------------------|--------------|------|
| Sauf en cas d'indications spéciales, régler chaque commutateur comme suit:<br>SPEAKER: B    REC OUT: OUT    SELECTOR: PHONO |                         |                     |  |                            |                       |              |      |
| 1   | OFFSET<br>(X11-1882-71) | —                   | Connecter un voltmètre de CC aux TP de X11 A/6.                      | MM/MC: MM                  | VR5 (L)<br>VR6 (R)    | 0V           | (a)  |
| 2   | OFFSET<br>(X07-2032-71) | —                   | Connecter un voltmètre de CC aux bornes de sortie + et - (SPEAKER B) | VOLUME: 0                  | VR1 (L)<br>VR2 (R)    | 0V           | (b)  |
| 3   | COURANT DE POLARISATION | —                   | Connecter un voltmètre de CC SUR R85 (D)<br>R86 (G)                  | VOLUME: 0                  | VR3 (L)<br>VR4 (R)    | 9 mV         | (c)  |

ABGLEICH

| NR.  | GEGENSTAND              | EINGANGS-EINSTELLUNG | AUSGANG-EINSTELLUNG  | VORSTÄRKER-EINSTELLUNG | ABGLEICHE-PUNKTE   | ABGLEICHEN FÜR | ABB. |
|--|-------------------------|----------------------|--|------------------------|--------------------|----------------|------|
| Außer wenn anders angegeben, die verschiedenen Schalter wie folgt einstellen:<br>SPEAKER: B    REC OUT: OUT    SELECTOR: PHONO |                         |                      |  |                        |                    |                |      |
| 1  | OFFSET<br>(X11-1882-71) | —                    | Einen Gleichspannungsmesser über TP von X11 A/6 anschließen. | MM/MC: MM              | VR5 (L)<br>VR6 (R) | 0V             | (a)  |
| 2  | OFFSET<br>(X07-2032-71) | —                    | Einen Gleichspannungsmesser über SPEAKER B anschließen.      | VOLUME: 0              | VR1 (L)<br>VR2 (R) | 0V             | (b)  |
| 3  | LEERLAUF-STROM          | —                    | Einen Gleichspannungsmesser über R85 (L)<br>R86 (R)          | VOLUME: 0              | VR3 (L)<br>VR4 (R) | 9 mV           | (c)  |

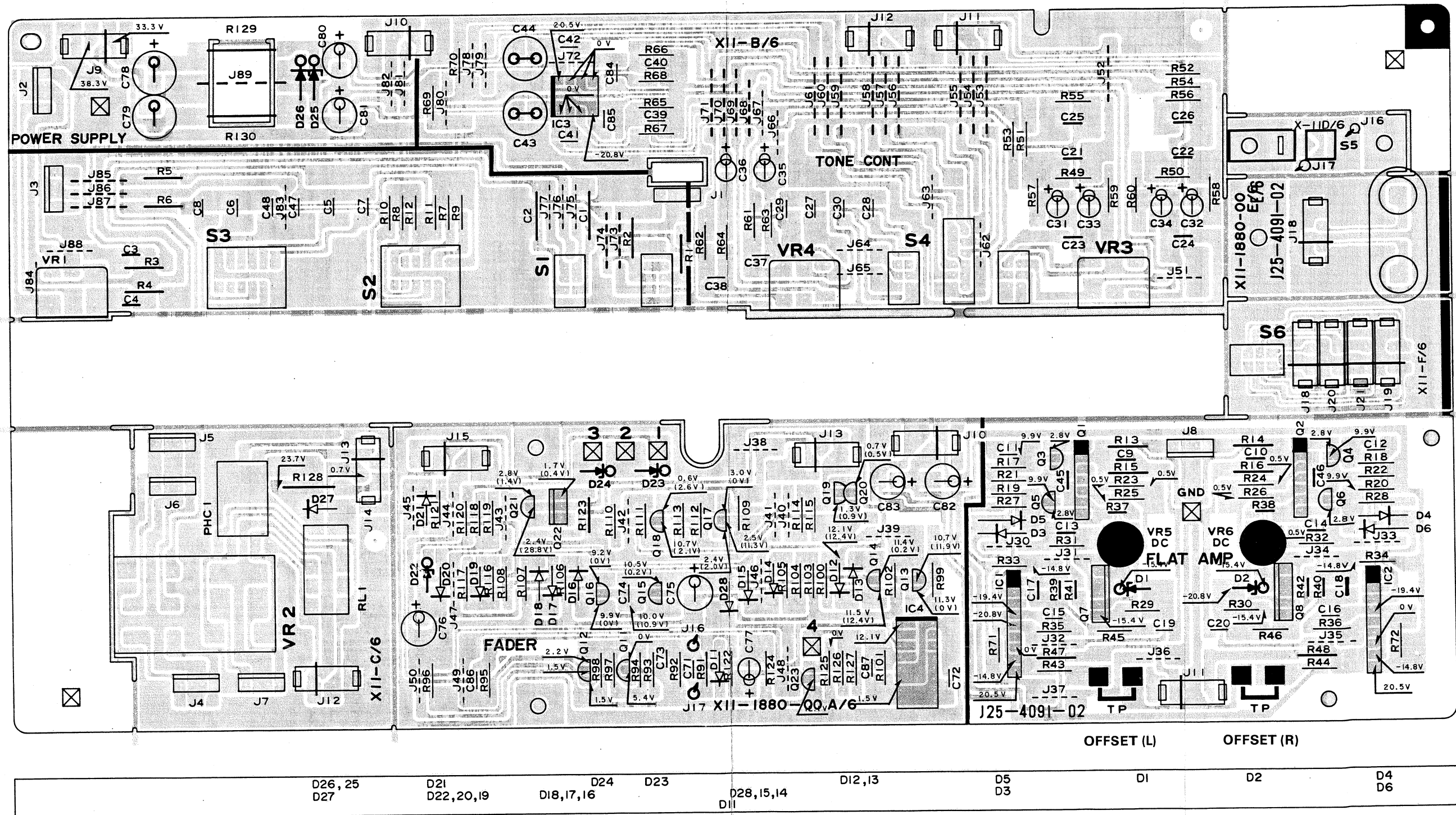




# KA-2200 KA-2200

## PC BOARD

### CONTROL (X11-1882-71) Component side view



In this model, there are separated pc boards which were originally one. These separated pc boards can't be supplied independently.

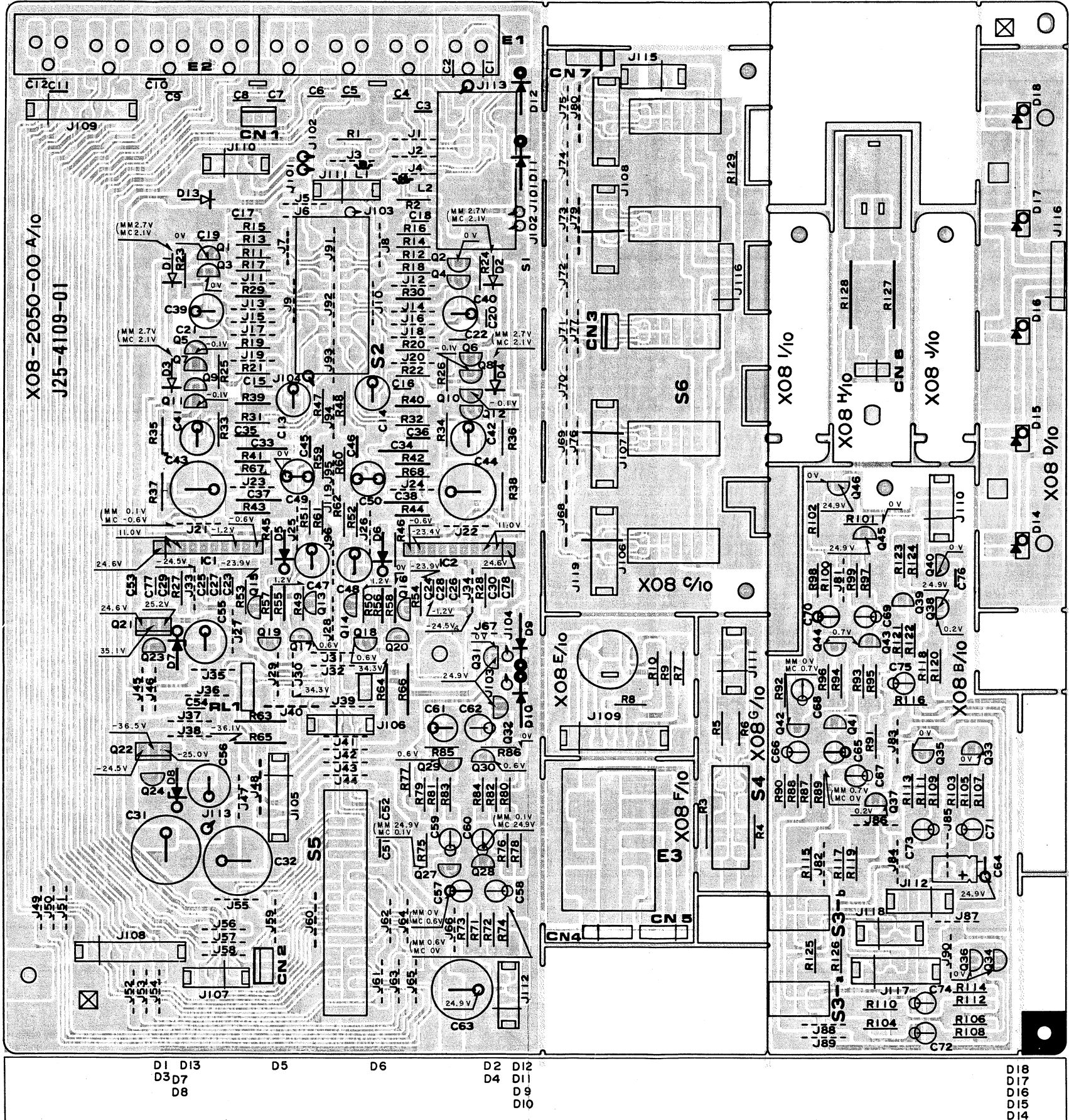
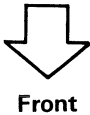
|     |                      |                       |
|-----|----------------------|-----------------------|
| Ex. | Part No. of pc board | Separated portion No. |
|     | X09-1230-00          | (A/3)                 |
|     | X09-1230-00          | (B/3)                 |
|     | X09-1230-00          | (C/3)                 |

In the example shown above, separated portion can't be ordered independently. In case only A/3 was ordered, pc board ass'y of X09-1230-00, which all A/3, B/3, C/3 included, will be shipped.

Refer to the schematic diagram for the values of capacitors and resistors. The PC board drawing is viewed from the side easy to check.

PC BOARD

PREAMP  
(X08-2052-71)  
Component side view



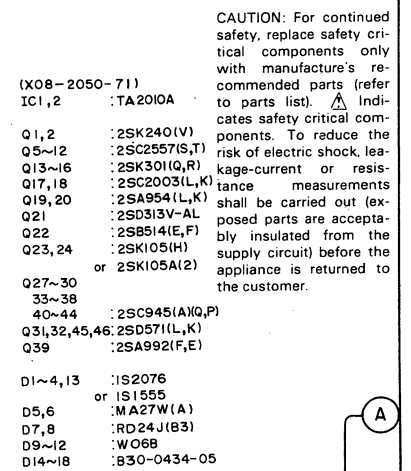
In this model, there are separated pc boards which were originally one. These separated pc boards can't be supplied independently.


| Ex. | Part No. of pc board | Separated portion No. |
|-----|----------------------|-----------------------|
|     | X09-1230-00          | (A/3)                 |
|     | X09-1230-00          | (B/3)                 |
|     | X09-1230-00          | (C/3)                 |

In the example shown above, separated portion can't be ordered independently. In case only A/3 was ordered, pc board ass'y of X09-1230-00, which all A/3, B/3, C/3 included, will be shipped.

Refer to the schematic diagram for the values of capacitors and resistors.  
The PC board drawing is viewed from the side easy to check.





**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

D1~4,13 :IS2076  
or :IS1555  
D5,6 :MA27W(A)  
D7,8 :RD24J(B3)  
D9~12 :WO6B  
D14~18 :B30-0434-05

(XII-1880-71)  
IC3 NJM2041D-D  
D25,26 BZ-197  
D27 IS2076 or IS1555

REC OUT SEL.

S 5

INPUT SEL

|       |       |     |        |        |
|-------|-------|-----|--------|--------|
|       |       |     |        |        |
| PHONO | TUNER | AUX | TAPE B | TAPE A |

S 6

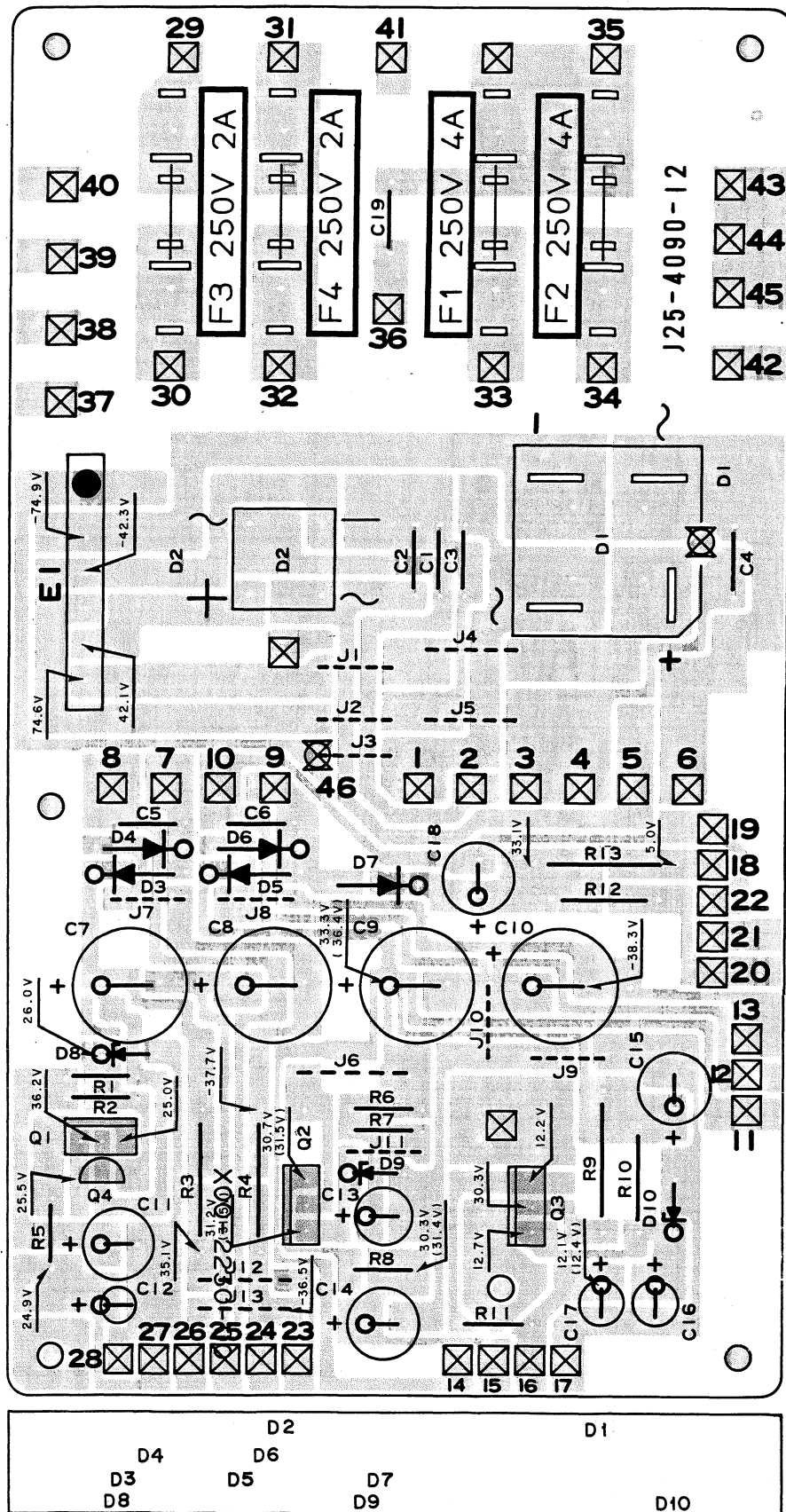
KA-2200 (E) (A/2) (Σ)

TA2010A

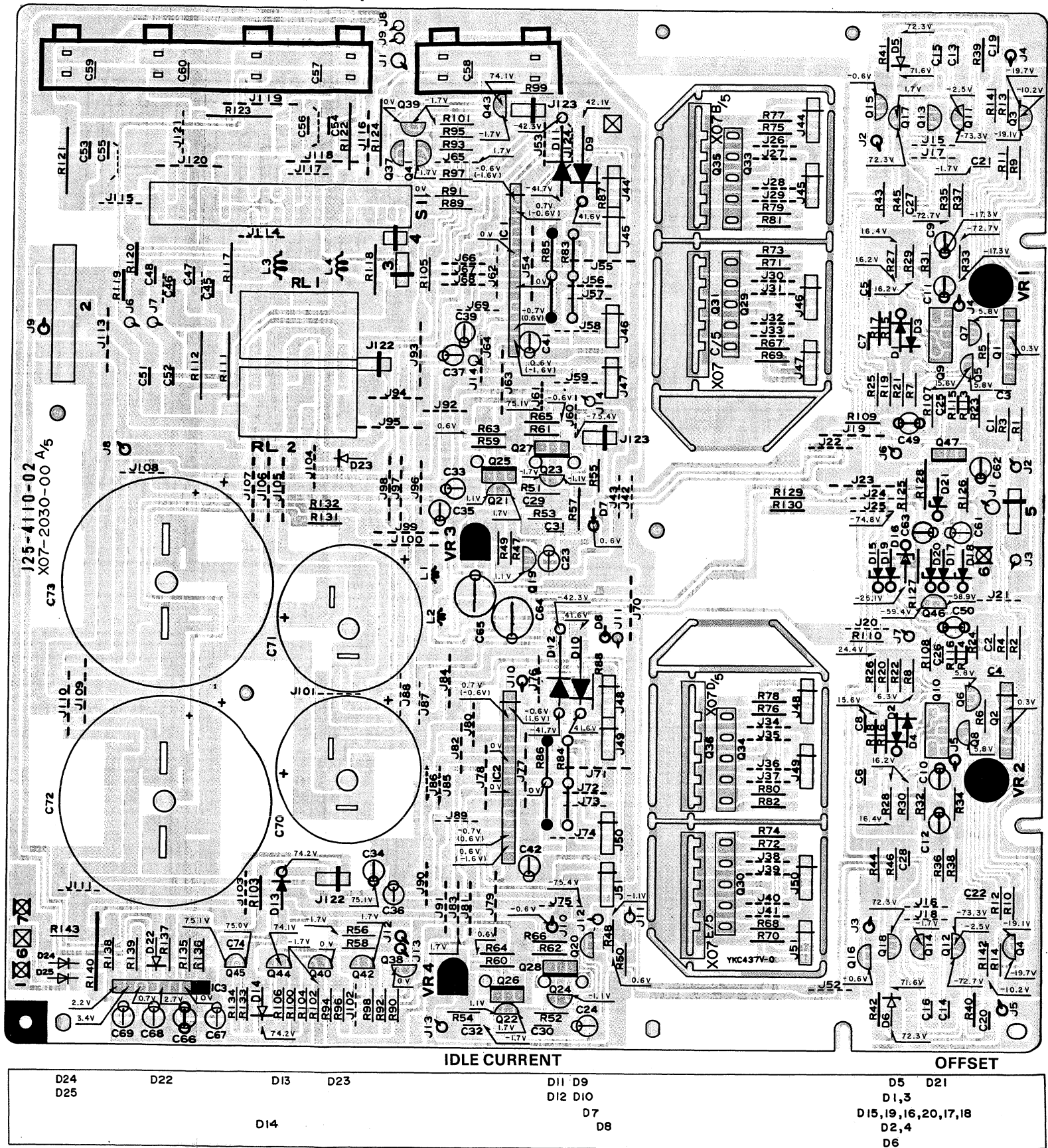
DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

PC BOARD

POWER (X00-2232-71) Component side view



POWER AMP (X07-2032-71) Component side view



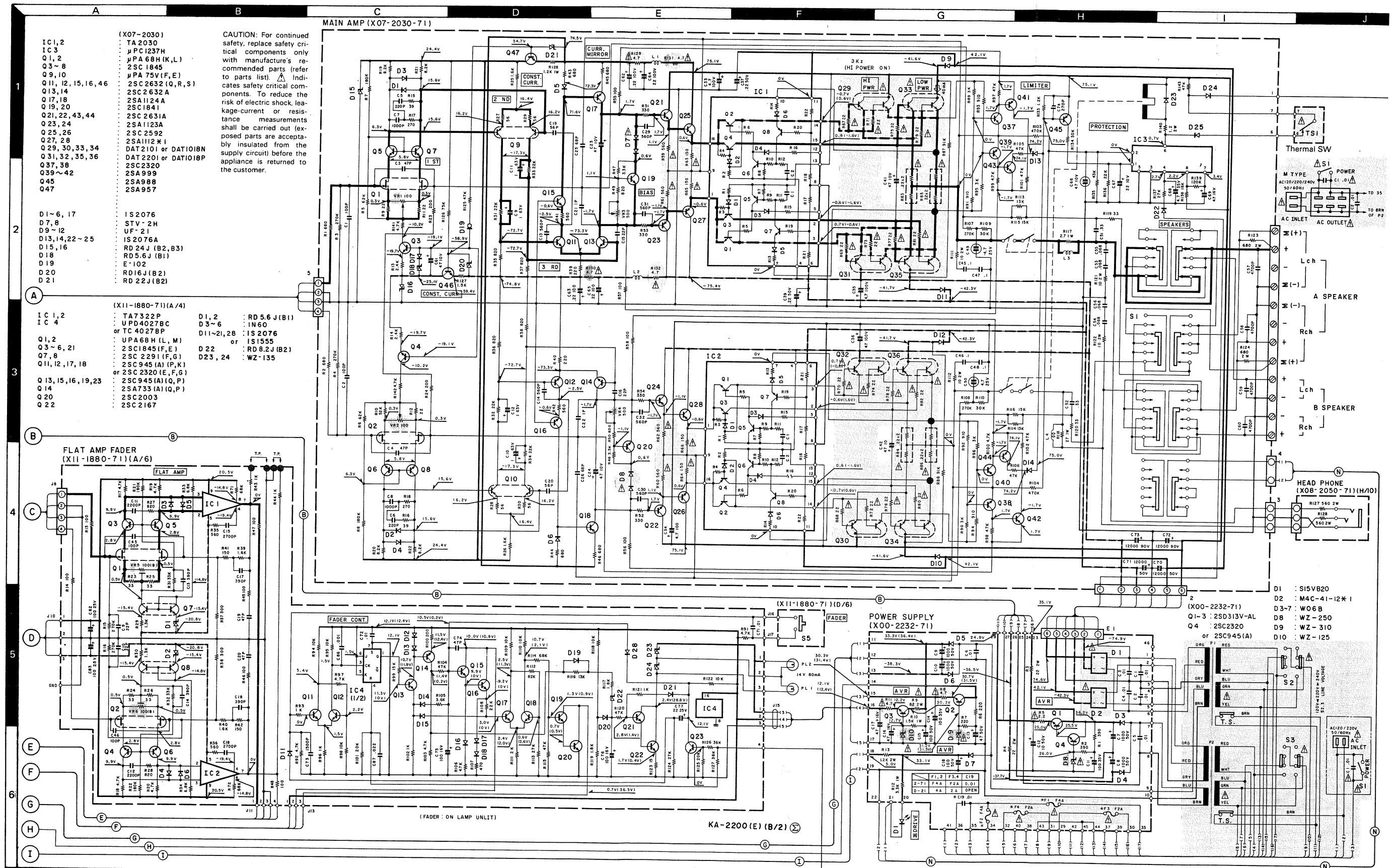
In this model, there are separated pc boards which were originally one. These separated pc boards can't be supplied independently.

| Ex. | Part No. of pc board | Separated portion No. |
|-----|----------------------|-----------------------|
|     | X09-1230-00          | (A/3)                 |
|     | X09-1230-00          | (B/3)                 |
|     | X09-1230-00          | (C/3)                 |

In the example shown above, separated portion can't be ordered independently. In case only A/3 was ordered, pc board ass'y of X09-1230-00, which all A/3, B/3, C/3 included, will be shipped.

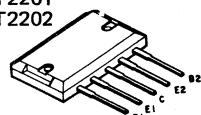
Refer to the schematic diagram for the values of capacitors and resistors. The PC board drawing is viewed from the side easy to check.





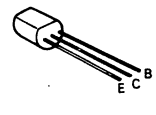
DAT1015N  
DAT1015P  
DAT1018N  
DAT1018P  
DAT2101  
DAT2102

DAT2201  
DAT2202

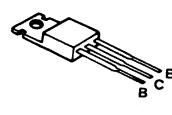


2SA1123A  
2SA1124A  
2SA733  
2SA988  
2SA999  
2SC1841

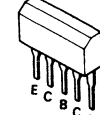
2SC1845  
2SC2320  
2SC2631A  
2SC2632A  
2SC945  
2SC2003



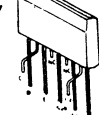
2SA1112  
2SA957  
2SC2167  
2SC2592  
2SC2632  
2SD313V-AL



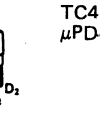
2SC2291



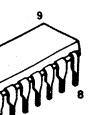
μPA75V



μPA68H



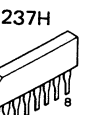
TC4027BP  
μPD4027BC



TA7322P



μPC1237H

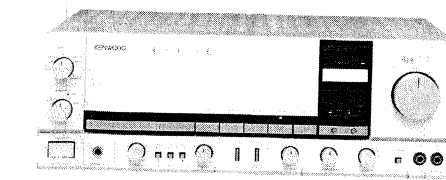
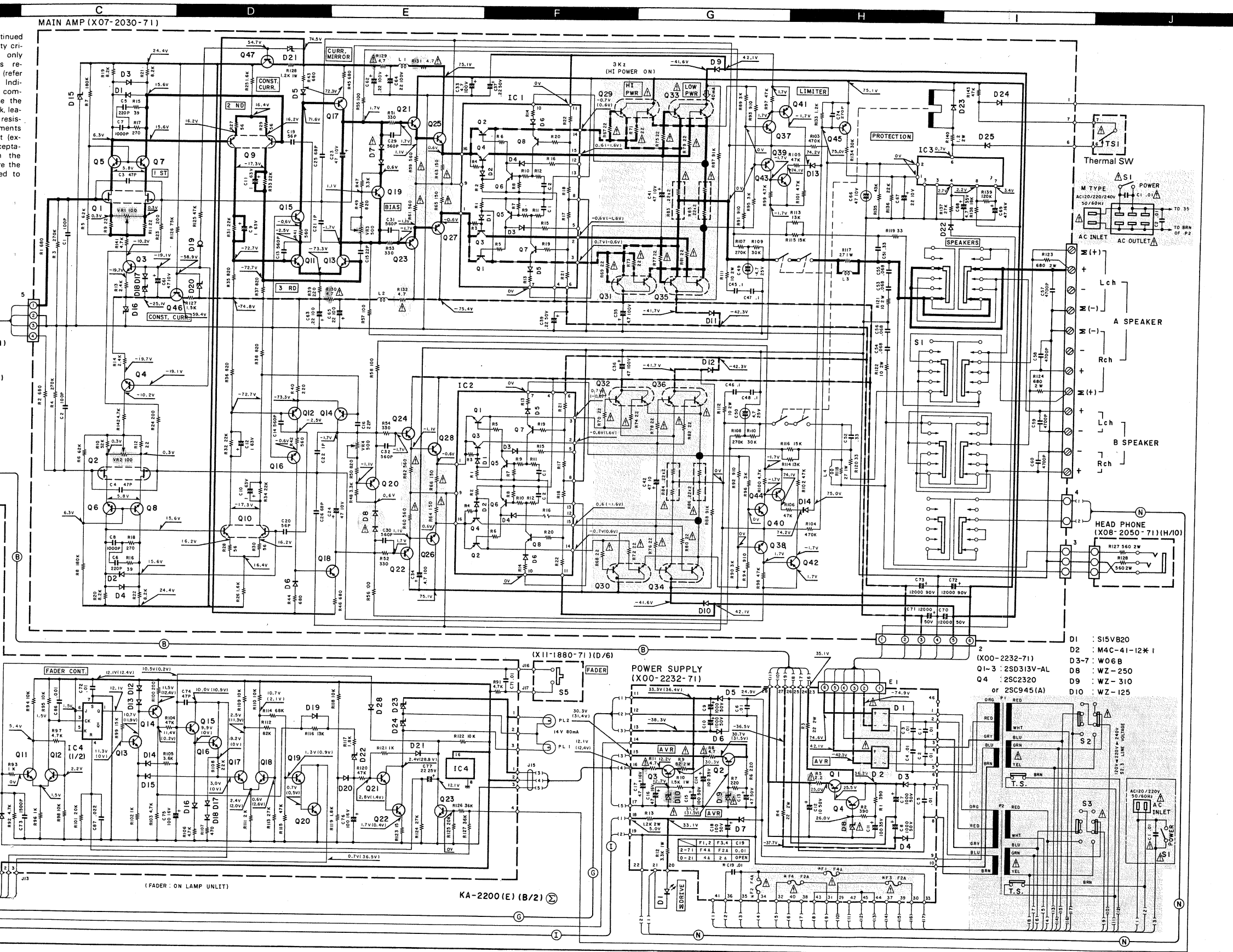


TA2030

DC voltages are as  
voltmeter with nc  
slightly due to var  
ments or/and units.

# STEREO INTEGRATED AMPLIFIER

# KA-2200



## SPECIFICATIONS

|   |   |
|---|---|
| <b>Total Harmonic Distortion</b><br>(20 Hz to 20,000 Hz)        |   |
| AUX input to SPEAKER output                                     | 0.003% at rated power into 8 ohms<br>0.003% at 1/2 rated power into 8 ohms    |
| <b>PHONO input to SPEAKER output</b>                            |   |
| Intermodulation Distortion                                      | 0.005% at rated power with VOLUME -20 dB<br>0.003% at rated power into 8 ohms |
| (60 Hz: 7 kHz = 4 : 1)  |   |
| Damping Factor  | 1,000 at 100 Hz   |
| <b>Transient Response</b>                                       |   |
| Rise Time   | 1.7 μs  |
| Slew Rate   | ± 100 V/μs  |
| <b>Frequency Response</b><br>(DC COUPLED at ON)                 |   |
| DC to 200 kHz, +0 dB, -3 dB                                     |   |
| (DC COUPLED at OFF)   | DC to 200 kHz, +0 dB, -3 dB   |
| <b>Speaker Impedance</b>  |   |
| Accept 4 ohms to 16 ohms  |   |
| <b>Input Sensitivity/Impedance</b>                              |   |
| Phono (MM)  | 2.5 mV/33 kohms, 47 kohms and 100 kohms                                       |
| Phono (MC)  | 0.1 mV/100 ohms   |
| Tuner, AUX, Tape A, B   | 150 mV/47 kohms   |
| <b>Signal to Noise Ratio</b><br>(IHF.A)                         |   |
| Phono (MM)  | 88 dB for 2.5 mV input<br>94 dB for 5.0 mV input<br>100 dB for 10 mV input    |
| Phono (MC)  | 70 dB for 0.1 mV input<br>76 dB for 0.2 mV input<br>110 dB for 150 mV input   |
| <b>Tuner, AUX, Tape A, B</b>                                    |   |
| Maximum Input Level   | 260 mV (RMS), T.H.D. 0.003% at 1,000 Hz                                       |
| Phono (MM)  | 260 mV (RMS), T.H.D. 0.003% at 1,000 Hz                                       |
| Phono (MC)  | 10 mV (RMS), T.H.D. 0.003% at 1,000 Hz  |
| <b>Output Level/Impedance</b>                                   |   |
| Tape REC (Pin)  | 150 mV/220 ohms   |
| (DIN)   | 30 mV/80 kohms  |
| <b>Phono Frequency Response</b>                                 |   |
| RIAA standard curve ±0.2 dB                                     | (20 Hz to 20 kHz)   |
| <b>Tape Control</b>   |   |
| Bass Turnover Freq.   | 200 Hz  |
| 400 Hz  | ± 10 dB at 50 Hz<br>± 10 dB at 100 Hz   |
| <b>Treble Turnover Freq.</b>                                    |   |
| 3 kHz   | ± 10 dB at 10 kHz   |
| 6 kHz   | ± 10 dB at 20 kHz   |
| <b>Loudness Control</b><br>(at -40 dB VOLUME Level)             |   |
| 30 Hz   | +3/6/9 dB   |
| 60 Hz   | +3/6/9 dB   |
| 90 Hz   | +3/6/9 dB   |
| <b>Subsonic Filter</b>  |   |
| 18 Hz, 6 dB/oct   |   |
| <b>GENERAL</b>  |   |
| <b>Power Requirements</b>                                       |   |
| 50 Hz 220V...European Model, 50 Hz 240V...UK Model, or 50/60 Hz |   |
| 110-120/220-240V (switchable)                                   |   |
| <b>Power Consumption</b>  |   |
| 900W at Rated Output at 8 ohms                                  |   |
| <b>A.C. Outlet</b>  |   |
| Switched 2, Unswitched 1  |   |
| <b>Dimensions</b>   |   |
| W 440 mm (17-5/16")   |   |
| H 158 mm (6-7/32")  |   |
| D 383 mm (15-3/32")   |   |

845  
320  
631A  
632A  
445  
0003

2SA1112  
2SA957  
2SC2167  
2SC2592  
2SC2632  
2SD1313V-AL

2SC2291

μPA75V

μPA68H

TC4027BP  
μPD4027BC

TA7322P

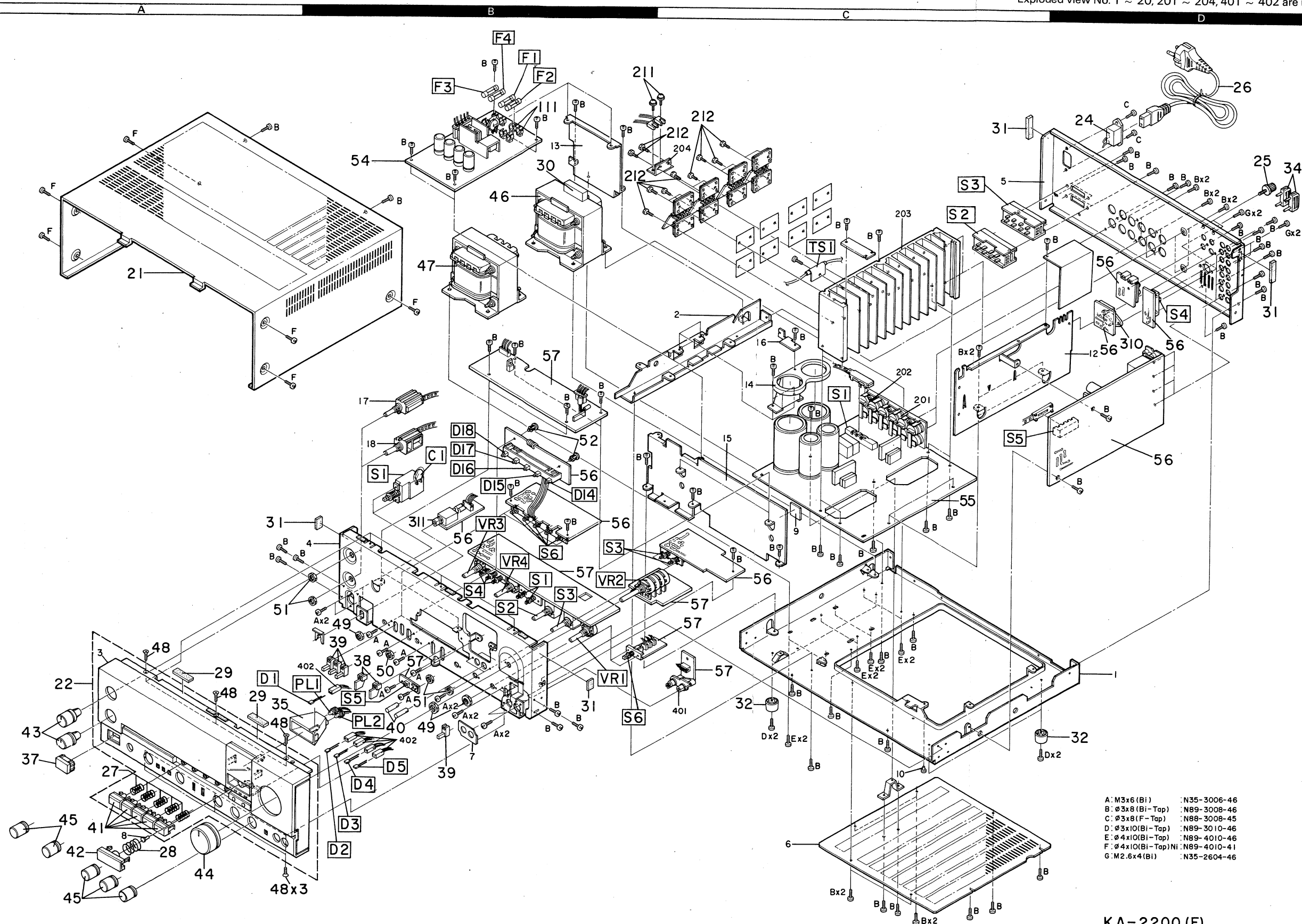
μPC1237H

TA2030

DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

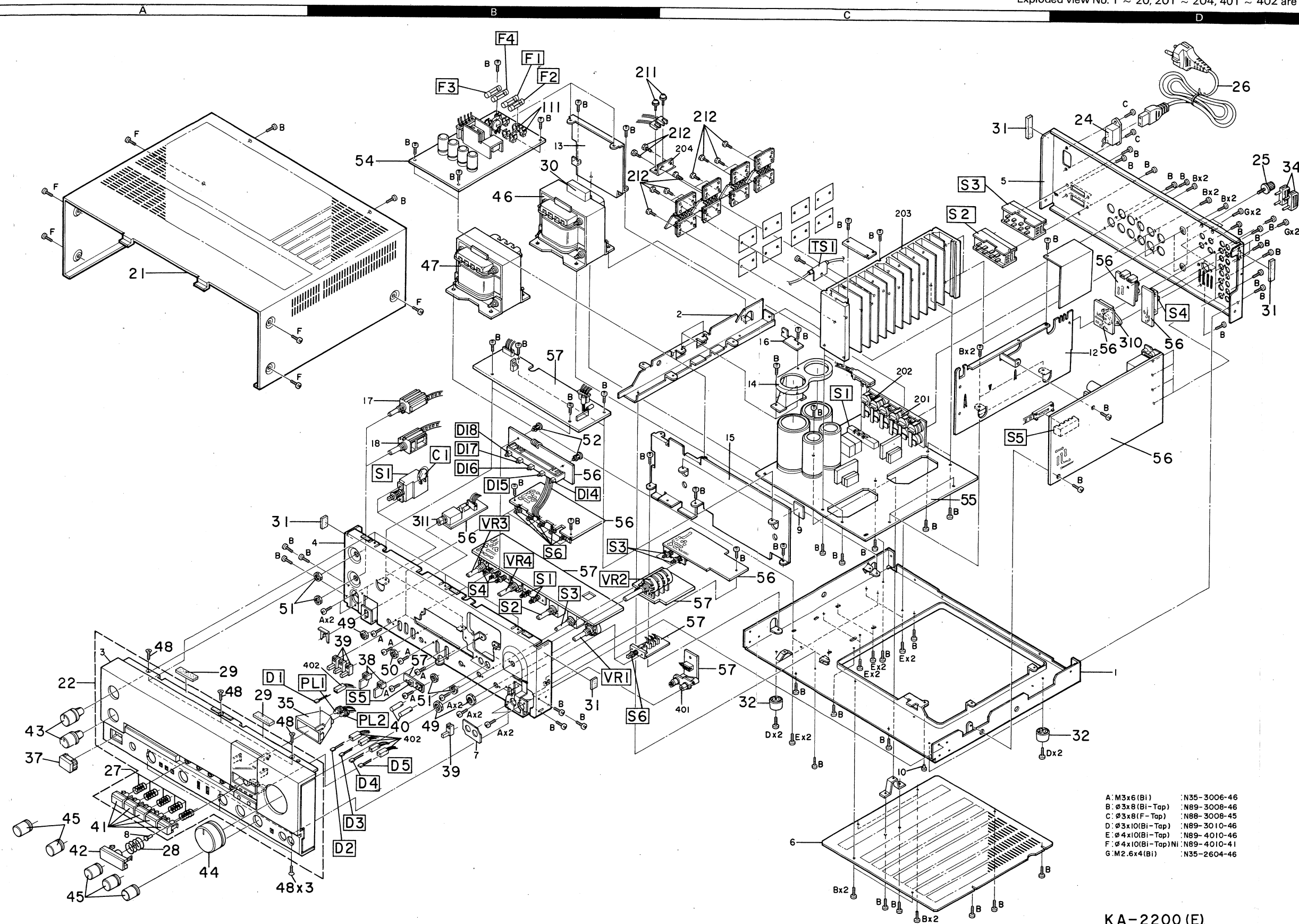
## EXPLODED VIEW

Exploded view No. 1 ~ 20, 201 ~ 204, 401 ~ 402 are not supplied



## EXPLODED VIEW

Exploded view No. 1 ~ 20, 201 ~ 204, 401 ~ 402 are not supplied.



|                      |             |
|----------------------|-------------|
| A: M3x6 (BI)         | N35-3006-46 |
| B: Ø3x8 (BI-Tap)     | N89-3008-46 |
| C: Ø3x8 (F-Tap)      | N88-3008-45 |
| D: Ø3x10 (BI-Tap)    | N89-3010-46 |
| E: Ø4x10 (BI-Tap)    | N89-4010-46 |
| F: Ø4x10 (BI-Tap) Ni | N89-4010-41 |
| G: M2.6x4 (BI)       | N35-2604-46 |

KA-2200 (E)



## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

| Ref. No.<br>参照番号 | Address<br>位置 | New<br>Parts<br>新 | Parts No.<br>部品番号 | Description<br>部品名/規格          | Desti-<br>nation<br>仕向 | Re-<br>marks<br>備考 |
|------------------|---------------|-------------------|-------------------|--------------------------------|------------------------|--------------------|
| KA-2200          |               |                   |                   |                                |                        |                    |
| 21               | 1A            | *                 | A01-0467-02       | METALLIC CABINET               |                        |                    |
| 22               | 3A            | *                 | A20-3381-01       | PANEL ASSY                     | UMHUE                  |                    |
| 22               | 3A            | *                 | A20-3381-01       | PANEL ASSY                     | XE                     |                    |
| 22               | 3A            | *                 | A20-3382-01       | PANEL ASSY                     | T                      |                    |
| -                |               |                   | B46-0094-03       | WARRANTY CARD                  | UHUE                   |                    |
| -                |               |                   | B46-0095-03       | WARRANTY CARD                  | UHUE                   |                    |
| -                |               |                   | B46-0096-03       | WARRANTY CARD                  | X                      |                    |
| -                |               |                   | B46-0097-03       | WARRANTY CARD                  | T                      |                    |
| -                |               |                   | B46-0098-03       | WARRANTY CARD                  | E                      |                    |
| -                |               | *                 | B50-4588-00       | INSTRUCTION MANUAL (ENGLISH)   | UMHUE                  |                    |
| -                |               | *                 | B50-4588-00       | INSTRUCTION MANUAL (ENGLISH)   | X                      |                    |
| -                |               | *                 | B50-4589-00       | INSTRUCTION MANUAL (FRENCH)    | MX                     |                    |
| -                |               | *                 | B50-4590-00       | INSTRUCTION MANUAL (SPANISH)   | M                      |                    |
| -                |               | *                 | B50-4591-00       | INSTRUCTION MANUAL (ENGLISH)   | T                      |                    |
| -                |               | *                 | B50-4592-00       | INSTRUCTION MANUAL (4-LINGUAL) | E                      |                    |
| -                |               |                   | B59-0092-00       | SERVICE DIRECTORY              | UHUE                   |                    |
| D1 -5            | 3A,3B         |                   | B30-0321-05       | LED(PR7531K) (SIGMA DR,PH0N01) |                        |                    |
| PL1 ,2           | 3A,3B         | *                 | B30-0433-15       | LAMP 14V 0.08A (FADER)         |                        |                    |
| △ C1             |               |                   | C91-0079-05       | CERAMIC 0.01UF AC125V          | TE                     |                    |
| △ C1 ,2          | 2B,1D         |                   | C91-0023-05       | CERAMIC 0.01UF AC250V          | UMHUE                  |                    |
| △ C1 ,2          | 2B,1D         |                   | C91-0023-05       | CERAMIC 0.01UF AC250V          | X                      |                    |
| △ 23             | 1D            |                   | E03-0007-05       | AC OUTLET                      | UMHUE                  |                    |
| △ 23             | 1D            |                   | E03-0007-05       | AC OUTLET                      | X                      |                    |
| △ 24             | 1D            |                   | E03-0058-05       | AC INLET                       |                        |                    |
| 25               | 1D            |                   | E21-0006-25       | BINDING POST (GND)             |                        |                    |
| △ 26             | 1D            |                   | E30-0726-05       | AC POWER CORD (INLET)          | E                      |                    |
| △ 26             | 1D            |                   | E30-0728-05       | AC POWER CORD (INLET)          | T                      |                    |
| △ 26             | 1D            |                   | E30-0729-05       | AC POWER CORD (INLET)          | X                      |                    |
| △ 26             | 1D            |                   | E30-0733-05       | AC POWER CORD (INLET)          | UMHUE                  |                    |
| 27               | 3A            |                   | G01-0488-04       | COMPRESSION SPRING (SELECTOR)  |                        |                    |
| 28               | 3A            |                   | G01-0489-04       | COMPRESSION SPRING (FADER)     |                        |                    |
| 29               | 3A            |                   | G10-0057-04       | NON-WOVEN FABRIC               |                        |                    |
| 30               | 1B            |                   | G11-0145-04       | SOFT TAPE 40X16X12             |                        |                    |
| 31               | 1D,3B         |                   | G11-0192-04       | CUSHION 40X8X2                 |                        |                    |
| -                |               | *                 | H01-4701-04       | ITEM CARTON CASE               | T                      |                    |
| -                |               | *                 | H01-4702-04       | ITEM CARTON CASE               | UMHUE                  |                    |
| -                |               | *                 | H01-4702-04       | ITEM CARTON CASE               | XE                     |                    |
| -                |               |                   | H10-1631-02       | POLYSTYRENE FOAMED FIXTURE     |                        |                    |
| -                |               |                   | H10-1632-02       | POLYSTYRENE FOAMED FIXTURE     |                        |                    |
| -                |               |                   | H20-0453-04       | PROTECTION COVER               |                        |                    |
| -                |               |                   | H25-0078-04       | PROTECTION BAG 235X315         |                        |                    |
| -                |               | *                 | H25-0204-04       | PROTECTION BAG                 |                        |                    |
| 32               | 3C,3D         |                   | J02-0126-05       | FOOT                           |                        |                    |
| 34               | 1D            | *                 | J12-0091-05       | SHORTING PIN (PRE OUT/MAIN IN) |                        |                    |
| 35               | 3A            |                   | J19-0658-04       | HOLDER (LAMP)                  | TE                     |                    |
| -                |               |                   | J61-0045-15       | WIRE BAND                      |                        |                    |
| -                |               |                   | J61-0307-05       | WIRE BAND                      |                        |                    |
| 37               | 3A            |                   | K27-0868-04       | KN0B(BUTTON) (POWER)           |                        |                    |
| 38               | 3B            |                   | K27-0869-04       | KN0B(BUTTON) (MODE,SUBSONIC)   |                        |                    |
| 39               | 3B            |                   | K27-0870-04       | KN0B(BUTTON) (TURNOVER,TONE)   |                        |                    |
| 39               | 3B            |                   | K27-0870-04       | KN0B(BTN) (AUX/DAD FRONT/REAR) |                        |                    |
| 40               | 3B            |                   | K27-0871-04       | KN0B(BUTTON) (MM/MC,PHONE 1/2) |                        |                    |

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|----------------------------|---------------|-------------------|-------------------|--------------------------------|-------------------------|--------------------|
| 41                         | 3A            |                   | K27-0872-03       | KNØB(BUTTON) (IN PANEL ASSY)   |                         |                    |
| 42                         | 3A            | *                 | K27-0879-03       | KNØB(BUTTON) (FADER)           |                         |                    |
| 43                         | 3A            |                   | K29-1041-04       | KNØB (REC OUT, SPEAKERS)       |                         |                    |
| 44                         | 3A            |                   | K29-1142-04       | KNØB (VOLUME CONTROL)          |                         |                    |
| 45                         | 3A            |                   | K29-1143-04       | KNØB (BASS, TREBLE, LOUD, BAL) |                         |                    |
| △ 46                       | 1B            | *                 | L01-2916-05       | POWER TRANSFORMER              |                         |                    |
| △ 47                       | 1B            | *                 | L01-2926-05       | POWER TRANSFORMER              |                         |                    |
| 48                         | 3A            |                   | N09-1277-05       | SCREW (φ3X8 F-TAP) PANEL ASSY  |                         |                    |
| 52                         | 2B            |                   | N29-0035-05       | PUSH RIVET φ3.5X5.5            |                         |                    |
| △ 51                       | 2B            |                   | S40-1014-05       | PUSH SWITCH (POWER TYPE)       | UMHUE                   |                    |
| △ 51                       | 2B            |                   | S40-1014-05       | PUSH SWITCH (POWER TYPE)       | X                       |                    |
| △ 51                       | 2B            |                   | S40-1047-05       | PUSH SWITCH (POWER TYPE)       | TE                      |                    |
| △ 52                       | .3            |                   | S31-2046-05       | SLIDE SWITCH (POWER TYPE)      |                         |                    |
| 54                         | 1B            | *                 | X00-2230-21       | POWER SUPPLY UNIT              | UMHUE                   |                    |
| 54                         | 1B            | *                 | X00-2230-21       | POWER SUPPLY UNIT              | X                       |                    |
| 54                         | 1B            | *                 | X00-2232-71       | POWER SUPPLY UNIT              | TE                      |                    |
| 55                         | 2C            | *                 | X07-2030-00       | POWER AMPLIFIER UNIT           | UMHUE                   |                    |
| 55                         | 2C            | *                 | X07-2030-00       | POWER AMPLIFIER UNIT           | XT                      |                    |
| 55                         | 2C            | *                 | X07-2032-71       | POWER AMPLIFIER UNIT           | E                       |                    |
| 56                         | 2B-D          | *                 | X08-2050-51       | PREAMPLIFIER UNIT              | T                       |                    |
| 56                         | 2B-D          | *                 | X08-2050-81       | PREAMPLIFIER UNIT              | UMHUE                   |                    |
| 56                         | 2B-D          | *                 | X08-2050-81       | PREAMPLIFIER UNIT              | X                       |                    |
| 56                         | 2B-D          | *                 | X08-2052-71       | PREAMPLIFIER UNIT              | E                       |                    |
| 57                         | 2B, 2C        | *                 | X11-1880-00       | CONTROL UNIT                   | UMHUE                   |                    |
| 57                         | 2B, 2C        | *                 | X11-1880-00       | CONTROL UNIT                   | XT                      |                    |
| 57                         | 2B, 2C        | *                 | X11-1882-71       | CONTROL UNIT                   | E                       |                    |
| POWER SUPPLY (X00-2230-21) |               |                   |                   |                                |                         |                    |
| △ C1                       | -6            |                   | CK45E2H103P       | CERAMIC 0.01UF P               |                         |                    |
| △ C19                      |               |                   | C91-0079-05       | CERAMIC 0.01UF AC125V          | TE                      |                    |
| △ F1                       | .2            |                   | F05-4022-05       | FUSE 250V 4A                   | UMHUE                   |                    |
| △ F1                       | .2            |                   | F05-4022-05       | FUSE 250V 4A                   | X                       |                    |
| △ F1                       | .2            |                   | F05-4024-05       | FUSE (SEMKO) 250V F4A          | TE                      |                    |
| △ F3                       | .4            |                   | F05-2023-05       | FUSE 250V 2A                   | UMHUE                   |                    |
| △ F3                       | .4            |                   | F05-2023-05       | FUSE 250V 2A                   | X                       |                    |
| △ F3                       | .4            |                   | F05-2029-05       | FUSE (SEMKO) 250V F2A          | TE                      |                    |
| 111                        | 1B            |                   | J13-0041-05       | FUSE CLIP                      | UMHUE                   |                    |
| 111                        | 1B            |                   | J13-0041-05       | FUSE CLIP                      | X                       |                    |
| 111                        | 1B            |                   | J13-0054-05       | FUSE CLIP                      | TE                      |                    |
| R1                         | .2            |                   | RD14GB2E391JMA    | FL-PROOF RD 390 J 2E           |                         |                    |
| △ R3                       |               |                   | RS14GB3D220JMA    | FL-PROOF RS 22 J 3D            |                         |                    |
| R4                         |               |                   | RS14GB3D220JMA    | FL-PROOF RS 22 J 3D            |                         |                    |
| △ R5                       |               | *                 | RD14GB2E2R2JMA    | FL-PROOF RD 2.2 J 2E           |                         |                    |
| R6                         | .7            |                   | RD14GB2E221JMA    | FL-PROOF RD 220 J 2E           |                         |                    |
| △ R8                       |               |                   | RD14GB2E4R7JMA    | FL-PROOF RD 4.7 J 2E           |                         |                    |
| △ R9                       |               |                   | RS14GB3D820JMA    | FL-PROOF RS 82 J 3D            |                         |                    |
| R10                        |               |                   | RS14GB3A152JMA    | FL-PROOF RS 1.5K J 3A          |                         |                    |
| △ R11                      |               |                   | RD14GB2E4R7JMA    | FL-PROOF RD 4.7 J 2E           |                         |                    |
| R12                        |               |                   | RS14GB3A332JMA    | FL-PROOF RS 3.3K J 3A          |                         |                    |
| R13                        |               |                   | RS14GB3D122JMA    | FL-PROOF RS 1.2K J 3D          |                         |                    |
| D1                         |               | *                 | S15VB20           | DIODE (BRIDGE RECTIFIER)       |                         |                    |
| D2                         |               |                   | M4C-41-12*1       | DIODE (BRIDGE RECTIFIER)       |                         |                    |

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|-------------------------------|---------------|-------------------|-------------------|--------------------------|------------------------|--------------------|
| △ D2                          |               | *                 | M4C-42-12*1       | DIODE (BRIDGE RECTIFIER) |                        |                    |
| D3 -7                         |               |                   | WD6B              | DIODE                    |                        |                    |
| △ D8                          |               |                   | WZ-25D            | ZENER DIODE              |                        |                    |
| △ D9                          |               |                   | WZ-31D            | ZENER DIODE              |                        |                    |
| △ D10                         |               |                   | WZ-125            | ZENER DIODE              |                        |                    |
| Q1 -3                         |               |                   | 2SD313V-AL        | TRANSISTOR               |                        |                    |
| Q4                            |               |                   | 2SC232D           | TRANSISTOR               |                        |                    |
| Q4                            |               |                   | 2SC945(A)         | TRANSISTOR               |                        |                    |
| POWER AMPLIFIER (X07-2030-00) |               |                   |                   |                          |                        |                    |
| C1 ,2                         |               |                   | CC45FSL1H101J     | CERAMIC 100PF J          |                        |                    |
| C3 ,4                         |               |                   | CC45FSL1H470J     | CERAMIC 47PF J           |                        |                    |
| C5 ,6                         |               | *                 | CK45FB1H221K      | CERAMIC 220PF K          | E                      |                    |
| C5 ,6                         |               | *                 | CK45FB1H561K      | CERAMIC 560PF K          | UMHUE                  |                    |
| C5 ,6                         |               | *                 | CK45FB1H561K      | CERAMIC 560PF K          | XT                     |                    |
| C7 ,8                         |               |                   | CK45FB1H102K      | CERAMIC 0.001UF K        |                        |                    |
| C9 -12                        |               | *                 | CE04FW1J010MEL    | ELECTRO 1.0UF 63WV       |                        |                    |
| C13 ,14                       |               | *                 | CK45B2H561K       | CERAMIC 560PF K          |                        |                    |
| C15 ,16                       |               |                   | CC45SL2H220J      | CERAMIC 22PF J           | E                      |                    |
| C15 ,16                       |               |                   | C91-0170-05       | POLYSTY 22PF K           | UMHUE                  |                    |
| C15 ,16                       |               |                   | C91-0170-05       | POLYSTY 22PF K           | XT                     |                    |
| C19                           |               | *                 | CC45FSL1H560J     | CERAMIC 56PF J           |                        |                    |
| C20                           |               | *                 | CC45FSL1H560J     | CERAMIC 56PF J           |                        |                    |
| C21 ,22                       |               |                   | CC45FSL1H010C     | CERAMIC 1.0PF C          |                        |                    |
| C25 ,26                       |               |                   | CC45FSL1H680J     | CERAMIC 68PF J           | E                      |                    |
| C25 ,26                       |               |                   | C91-0176-05       | POLYSTY 68PF K           | UMHUE                  |                    |
| C25 ,26                       |               |                   | C91-0176-05       | POLYSTY 68PF K           | XT                     |                    |
| C27 ,28                       |               |                   | CC45FSL1H151J     | CERAMIC 150PF J          | UMHUE                  |                    |
| C27 ,28                       |               |                   | CC45FSL1H151J     | CERAMIC 150PF J          | XT                     |                    |
| C29 -32                       |               |                   | CK45FB1H561K      | CERAMIC 560PF K          |                        |                    |
| C45 -48                       |               | *                 | CQ93FM1H104J      | MYLAR 0.10UF J           | E                      |                    |
| C45 ,46                       |               | *                 | CQ93FM1H473J      | MYLAR 0.047UF J          | UMHUE                  |                    |
| C45 ,46                       |               | *                 | CQ93FM1H473J      | MYLAR 0.047UF J          | XT                     |                    |
| C49 ,50                       |               | *                 | CE04HW1E4R7MEL    | NP-ELEC 4.7UF 25WV       |                        |                    |
| C51 ,52                       |               | *                 | CQ93FM1H334J      | MYLAR 0.33UF J           |                        |                    |
| C53 -56                       |               | *                 | CQ93FM1H683J      | MYLAR 0.068UF J          | E                      |                    |
| C53 ,54                       |               | *                 | CQ93FM1H333J      | MYLAR 0.033UF J          | UMHUE                  |                    |
| C53 ,54                       |               | *                 | CQ93FM1H333J      | MYLAR 0.033UF J          | XT                     |                    |
| C57 -60                       |               |                   | CK45FB1H472K      | CERAMIC 4700PF K         | E                      |                    |
| C66                           |               | *                 | CE04HW1A470MEL    | NP-ELEC 47UF 10WV        |                        |                    |
| C69                           |               | *                 | CE04GW1C470MEL    | LL-ELEC 47UF 16WV        |                        |                    |
| C70 ,71                       |               | *                 | C90-1235-05       | ELECTRO 12000UF 50WV     |                        |                    |
| C72 ,73                       |               | *                 | C90-1234-05       | ELECTRO 12000UF 90WV     |                        |                    |
| C74                           |               |                   | CC45FSL1H271J     | CERAMIC 270PF J          |                        |                    |
| -                             |               |                   | J61-0045-15       | WIRE BAND                |                        |                    |
| L1 ,2                         |               |                   | L33-0275-05       | CHOKO COIL               |                        |                    |
| L3 ,4                         |               |                   | L39-0085-05       | PHASE-COMPENSATION COIL  |                        |                    |
| 211                           | 1B            |                   | ND9-0287-05       | SEMS SCREW (VARISTOR)    |                        |                    |
| 212                           | 1B, 1C        |                   | ND9-1202-05       | TAPPING SCREW (POWER TR) |                        |                    |
| R39 ,40                       |               |                   | RD14GB2E221JTS    | FL-PROOF RD 220 J 2E     |                        |                    |
| R41 ,42                       |               |                   | RD14GB2E561JTS    | FL-PROOF RD 560 J 2E     |                        |                    |
| R43 -46                       |               |                   | RD14GB2E681JTS    | FL-PROOF RD 680 J 2E     |                        |                    |
| R51 -54                       |               |                   | RD14GB2E331JTS    | FL-PROOF RD 330 J 2E     |                        |                    |
| △ R59 -62                     |               |                   | RD14GB2E561JTS    | FL-PROOF RD 560 J 2E     |                        |                    |

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|------------------|---------------|-------------------|-------------------|----------------------------|------------------------|--------------------|
| △ R63 -66        |               |                   | RD14GB2E151JTS    | FL-PROOF RD 150 J 2E       |                        |                    |
| △ R67 -82        |               |                   | RD14GB2E220JTS    | FL-PROOF RD 22 J 2E        |                        |                    |
| △ R83 -86        |               |                   | R90-0187-05       | MULTI-COMP 0.22X2 K 3H     |                        |                    |
| R111,112         |               |                   | RS14GB3D100JMA    | FL-PROOF RS 10 J 3D        |                        |                    |
| R113,114         |               | *                 | RN92BC2E133F      | RN 13K F 2E                |                        |                    |
| R115,116         |               |                   | RN92BC2E153F      | RN 15K F 2E                |                        |                    |
| R117,118         |               |                   | RS14GB3A2R7JMA    | FL-PROOF RS 2.7 J 3A       |                        |                    |
| R119,120         |               |                   | RD14GB2E330JTS    | FL-PROOF RD 33 J 2E        |                        |                    |
| R121,122         |               |                   | RS14GB3D100JMA    | FL-PROOF RS 10 J 3D        |                        |                    |
| R123,124         |               |                   | RS14GB3D681JMA    | FL-PROOF RS 680 J 3D       |                        |                    |
| R127             |               | *                 | RD14GB2E152JTS    | FL-PROOF RD 1.5K J 2E      |                        |                    |
| R128             |               |                   | RS14GB3A122JMA    | FL-PROOF RS 1.2K J 3A      |                        |                    |
| △ R129           |               |                   | RD14GB2E4R7JTS    | FL-PROOF RD 4.7 J 2E       |                        |                    |
| R130             |               |                   | RD14GB2E4R7JTS    | FL-PROOF RD 4.7 J 2E       |                        |                    |
| R131             |               |                   | RD14GB2E4R7JTS    | FL-PROOF RD 4.7 J 2E       | E                      |                    |
| △ R132           |               |                   | RD14GB2E4R7JTS    | FL-PROOF RD 4.7 J 2E       | E                      |                    |
| R140             |               |                   | RS14GB3D122JMA    | FL-PROOF RS 1.2K J 3D      |                        |                    |
| VR1 ,2           |               |                   | R12-0502-05       | TRIMMING PNT. 100 (OFFSET) |                        |                    |
| VR3 ,4           |               |                   | R12-0302-05       | TRIMMING PNT. 500 (IDLING) |                        |                    |
| RL1 ,2           |               |                   | S51-2045-05       | MAGNETIC RELAY             |                        |                    |
| S1               | 2C            | *                 | S90-0068-05       | SLIDE SWITCH (SPEAKER)     |                        |                    |
| △ TS1            | 1C            | *                 | S59-1061-05       | THERMAL SWITCH (130 °C)    |                        |                    |
| D1 ,2            |               |                   | 1S2076            | DIODE                      |                        |                    |
| D3 -6            |               |                   | 1S2076            | DIODE                      |                        |                    |
| △ D7 ,8          |               | *                 | STV-2H            | VARIATOR                   |                        |                    |
| D9 -12           |               |                   | UF-21             | DIODE                      |                        |                    |
| D13 ,14          |               |                   | 1S2076A           | DIODE                      |                        |                    |
| D15 ,16          |               | *                 | RD24J(B2,B3)      | ZENER DIODE                |                        |                    |
| D17              |               |                   | 1S2076            | DIODE                      |                        |                    |
| D18              |               | *                 | RD5.6J(B1)        | ZENER DIODE                |                        |                    |
| D19              |               |                   | E-102             | CONSTANT CURRENT DIODE     |                        |                    |
| D20              |               | *                 | RD16J(B2)         | ZENER DIODE                |                        |                    |
| D21              |               |                   | RD22J(B2)         | ZENER DIODE                |                        |                    |
| D22 -25          |               |                   | 1S2076A           | DIODE                      |                        |                    |
| IC1 ,2           |               |                   | TA2030            | IC (SWITCHING)             |                        |                    |
| IC3              |               |                   | UPC1237H          | IC (PROTECTION)            |                        |                    |
| Q1 ,2            |               |                   | UPA68H(K,L)       | DUAL FET                   |                        |                    |
| Q3 -8            |               |                   | 2SC1845           | TRANSISTOR                 |                        |                    |
| Q9 ,10           |               |                   | UPA75V(F,E)       | DUAL TRANSISTOR            |                        |                    |
| Q11 ,12          |               |                   | 2SC2632(Q,R,S)    | TRANSISTOR                 |                        |                    |
| Q13 ,14          |               | *                 | 2SC2632A          | TRANSISTOR                 |                        |                    |
| Q15 ,16          |               |                   | 2SC2632(Q,R,S)    | TRANSISTOR                 |                        |                    |
| Q17 ,18          |               | *                 | 2SA1124A          | TRANSISTOR                 |                        |                    |
| Q19 ,20          |               |                   | 2SC1841           | TRANSISTOR                 |                        |                    |
| Q21 ,22          |               | *                 | 2SC2631A          | TRANSISTOR                 |                        |                    |
| Q23 ,24          |               | *                 | 2SA1123A          | TRANSISTOR                 |                        |                    |
| Q25 ,26          |               | *                 | 2SC2592           | TRANSISTOR                 |                        |                    |
| Q27 ,28          |               | *                 | 2SA1112*1         | TRANSISTOR                 |                        |                    |
| △ Q29 ,30        |               | *                 | DAT1018N          | TRANSISTOR                 |                        |                    |
| △ Q29 ,30        |               | *                 | DAT2101           | TRANSISTOR                 |                        |                    |
| △ Q31 ,32        |               | *                 | DAT1018P          | TRANSISTOR                 |                        |                    |
| △ Q31 ,32        |               | *                 | DAT2201           | TRANSISTOR                 |                        |                    |
| △ Q33 ,34        |               | *                 | DAT1018N          | TRANSISTOR                 |                        |                    |
| △ Q33 ,34        |               | *                 | DAT2101           | TRANSISTOR                 |                        |                    |

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| D4               |               |                   | 1S1555            | DIODE                   |                        |                    |
| D4               |               |                   | 1S2076            | DIODE                   |                        |                    |
| D5 ,6            |               | *                 | MA27W(A)          | VARISTOR                |                        |                    |
| △ D7 ,8          |               | *                 | RD24J(B3)         | ZENER DIODE             |                        |                    |
| D9 -12           |               |                   | W06B              | DIODE                   |                        |                    |
| D13              |               |                   | 1S1555            | DIODE                   |                        |                    |
| D13              |               |                   | 1S2076            | DIODE                   |                        |                    |
| IC1 ,2           |               |                   | TA2010A           | IC (EQ AMP)             |                        |                    |
| Q1 ,2            |               |                   | 2SK240(V)         | FET                     |                        |                    |
| Q5 -12           |               |                   | 2SC2557(S,T)      | TRANSISTOR              |                        |                    |
| Q13 -16          |               |                   | 2SK301(Q,R)       | FET                     |                        |                    |
| Q17 ,18          |               |                   | 2SC2003(L,K)      | TRANSISTOR              |                        |                    |
| Q19 ,20          |               |                   | 2SA954(L,K)       | TRANSISTOR              |                        |                    |
| Q21              |               |                   | 2SD313V-AL        | TRANSISTOR              |                        |                    |
| Q22              |               |                   | 2SB514(E,F)       | TRANSISTOR              |                        |                    |
| Q23 ,24          |               |                   | 2SK105(H)         | FET                     |                        |                    |
| Q23 ,24          |               | *                 | 2SK105A(2)        | FET                     |                        |                    |
| Q27 -30          |               |                   | 2SC945(A)(Q,P)    | TRANSISTOR              |                        |                    |
| Q31 ,32          |               | *                 | 2SD571(L,K)       | TRANSISTOR              |                        |                    |
| Q33 -38          |               |                   | 2SC945(A)(Q,P)    | TRANSISTOR              |                        |                    |
| Q39              |               |                   | 2SA992(F,E)       | TRANSISTOR              |                        |                    |
| Q40 -44          |               |                   | 2SC945(A)(Q,P)    | TRANSISTOR              |                        |                    |
| Q45 ,46          |               | *                 | 2SD571(L,K)       | TRANSISTOR              |                        |                    |

## CONTROL (X11-1882-71)

|         |  |   |                |         |         |      |       |  |
|---------|--|---|----------------|---------|---------|------|-------|--|
| C1 ,2   |  |   | CQ93AP2A224J   | POLYPR0 | 0.22UF  | J    |       |  |
| C3 ,4   |  |   | C91-0088-05    | POLYSTY | 100PF   | K    |       |  |
| C5 ,6   |  |   | CQ93FM1H333J   | MYLAR   | 0.033UF | J    |       |  |
| C7 ,8   |  |   | CQ93FM1H683J   | MYLAR   | 0.068UF | J    |       |  |
| C9 ,10  |  |   | C91-0166-05    | POLYSTY | 10PF    | D    | UMHUE |  |
| C9 ,10  |  |   | C91-0166-05    | POLYSTY | 10PF    | D    | XT    |  |
| C9 ,10  |  |   | C91-0170-05    | POLYSTY | 22PF    | K    | E     |  |
| C11 ,12 |  |   | CK45FB1H152K   | CERAMIC | 1500PF  | K    | UMHUE |  |
| C11 ,12 |  |   | CK45FB1H152K   | CERAMIC | 1500PF  | K    | XT    |  |
| C11 ,12 |  |   | CK45FB1H222K   | CERAMIC | 2200PF  | K    | E     |  |
| C13 ,14 |  |   | C91-0095-05    | POLYSTY | 390PF   | J    |       |  |
| C15 ,16 |  | * | CK45FB1H272K   | CERAMIC | 2700PF  | K    | E     |  |
| C15 ,16 |  |   | CK45FB1H681K   | CERAMIC | 680PF   | K    | UMHUE |  |
| C15 ,16 |  |   | CK45FB1H681K   | CERAMIC | 680PF   | K    | XT    |  |
| C17 ,18 |  |   | C91-0090-05    | POLYSTY | 150PF   | J    | UMHUE |  |
| C17 ,18 |  |   | C91-0090-05    | POLYSTY | 150PF   | J    | XT    |  |
| C17 ,18 |  |   | C91-0095-05    | POLYSTY | 390PF   | J    | E     |  |
| C19 ,20 |  |   | CC45FSL1H470J  | CERAMIC | 47PF    | J    |       |  |
| C21 -26 |  |   | CQ93FM1H334J   | MYLAR   | 0.33UF  | J    |       |  |
| C27 -30 |  |   | CQ93FM1H562J   | MYLAR   | 5600PF  | J    |       |  |
| C37 ,38 |  |   | CC45FSL1H101J  | CERAMIC | 100PF   | J    |       |  |
| C39 ,40 |  |   | CQ93FM1H102J   | MYLAR   | 0.001UF | J    |       |  |
| C41 ,42 |  |   | CC45FSL1H220J  | CERAMIC | 22PF    | J    |       |  |
| C43 ,44 |  | * | CE04HW1E470MEL | NP-ELEC | 47UF    | 25WV |       |  |
| C45 ,46 |  |   | CC45FSL1H101J  | CERAMIC | 100PF   | J    | E     |  |
| C47 ,48 |  | * | CQ93FM1H273J   | MYLAR   | 0.027UF | J    |       |  |
| C71 ,72 |  |   | CK45FF1H103Z   | CERAMIC | 0.01UF  | Z    |       |  |
| C73     |  |   | CK45FB1H152K   | CERAMIC | 1500PF  | K    |       |  |
| C74     |  |   | CC45FSL1H470J  | CERAMIC | 47PF    | J    |       |  |
| C84 ,85 |  |   | CK45FF1H223Z   | CERAMIC | 0.022UF | Z    |       |  |

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| 4        |         |           | 2SA733(A)(Q,P) | TRANSISTOR  |                  |              |
| 5,16     |         |           | 2SC945(A)(Q,P) | TRANSISTOR  |                  |              |
| 7,18     |         |           | 2SC2320(E,F,G) | TRANSISTOR  |                  |              |
| 7,18     |         |           | 2SC945(A)(P,K) | TRANSISTOR  |                  |              |
| 9        |         |           | 2SC945(A)(Q,P) | TRANSISTOR  |                  |              |
| 10       |         |           | 2SC2003        | TRANSISTOR  |                  |              |
| 11       |         |           | 2SC1845(F,E)   | TRANSISTOR  |                  |              |
| 12       |         |           | 2SC2167        | TRANSISTOR  |                  |              |
| 13       |         |           | 2SC945(A)(Q,P) | TRANSISTOR  |                  |              |

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## Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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|-------------------------------|---------------|--------------|-------------------|--------------------------------|------------------------|--------------------|
| Q35 ,36                       |               | *            | DAT101BP          | TRANSISTOR                     |                        |                    |
| Q35 ,36                       |               | *            | DAT2201           | TRANSISTOR                     |                        |                    |
| Q37 ,38                       |               |              | 2SC2320           | TRANSISTOR                     |                        |                    |
| Q39 -42                       |               |              | 2SA999            | TRANSISTOR                     |                        |                    |
| Q43 ,44                       |               | *            | 2SC2631A          | TRANSISTOR                     |                        |                    |
| Q45                           |               |              | 2SA988            | TRANSISTOR                     |                        |                    |
| Q46                           |               |              | 2SC2632(Q,R,S)    | TRANSISTOR                     |                        |                    |
| Q47                           |               |              | 2SA957            | TRANSISTOR                     |                        |                    |
| POWER AMPLIFIER (X08-2050-51) |               |              |                   |                                |                        |                    |
| D14 -18                       | 2B            |              | B30-0434-05       | LED(SLP-175D-50) (SELECTOR)    |                        |                    |
| C1 -12                        |               | *            | CC45FSL1H121J     | CERAMIC 120PF J                | E                      |                    |
| C15 ,16                       |               |              | CK45FB1H681K      | CERAMIC 680PF K                |                        |                    |
| C17 ,18                       |               |              | CC45FSL1H271J     | CERAMIC 270PF J                |                        |                    |
| C19 -22                       |               |              | CK45FB1H222K      | CERAMIC 2200PF K               | E                      |                    |
| C23 ,24                       |               |              | CC45FSL1H050C     | CERAMIC 5.0PF C                |                        |                    |
| C25 ,26                       |               |              | CC45FSL1H101J     | CERAMIC 100PF J                |                        |                    |
| C27 ,28                       |               |              | CC45FSL1H221J     | CERAMIC 220PF J                |                        |                    |
| C29 ,30                       |               |              | CK45FB1H152K      | CERAMIC 1500PF K               |                        |                    |
| C33 ,34                       |               | *            | CQ93AP2A683GMA    | MYLAR 0.068UF G                |                        |                    |
| C35 ,36                       |               | *            | CQ93AP2A332GMA    | MYLAR 3300PF G                 |                        |                    |
| C37 ,38                       |               | *            | CQ93AP2A203GMA    | MYLAR 0.020UF G                |                        |                    |
| C45 ,46                       |               | *            | CK45FB1H102K      | CERAMIC 0.001UF K              |                        |                    |
| C49 ,50                       |               | *            | CE04HW1H4R7MEL    | NP-ELEC 4.7UF 50WV             |                        |                    |
| C51 ,52                       |               | *            | CQ09S1H331J       | POLYSTY 330PF J                |                        |                    |
| C53 ,54                       |               | *            | CQ93FM1H103J      | MYLAR 0.010UF J                |                        |                    |
| C59 ,60                       |               | *            | CE04HW1H3R3MEL    | NP-ELEC 3.3UF 50WV             |                        |                    |
| C67 ,68                       |               | *            | CE04HW1H3R3MEL    | NP-ELEC 3.3UF 50WV             |                        |                    |
| C76                           |               | *            | CK45FB1H102K      | CERAMIC 0.001UF K              |                        |                    |
| C77 ,78                       |               |              | CC45FSL1H101J     | CERAMIC 100PF J                | E                      |                    |
| 310                           | 2D            |              | EO6-0513-05       | REC/PLAY JACK                  | TE                     |                    |
| 311                           | 2B            |              | E11-0093-05       | PHONE JACK                     |                        |                    |
| E1 ,2                         |               |              | E40-0356-05       | SOCKET FOR PIN ASSY            |                        |                    |
| E3                            |               | *            | E13-0814-05       | PHONE JACK                     |                        |                    |
|                               |               | *            | E13-0492-05       | PHONE JACK                     |                        |                    |
| L1 ,2                         |               |              | L40-1011-43       | SMALL FIXED INDUCTOR           | E                      |                    |
| R29 ,30                       |               | *            | RN14BK2E820JHD    | RN 82 J 2E                     |                        |                    |
| R39 ,40                       |               | *            | RN14BK2E3R3JHD    | RN 3.3 J 2E                    |                        |                    |
| R41 ,42                       |               | *            | RN14BK2E4532GHD   | RN 45K 2 2E                    |                        |                    |
| R43 ,44                       |               | *            | RN14BK2E3741GHD   | RN 370K 1 2E                   |                        |                    |
| R45 ,46                       |               |              | RD14GB2E101JTS    | FL-PROOF RD 100 J 2E           |                        |                    |
| R55 -58                       |               |              | RD14GB2E100JTS    | FL-PROOF RD 10 J 2E            |                        |                    |
| R63 -66                       |               |              | RS14GB3A101JMA    | FL-PROOF RS 100 J 3A           |                        |                    |
| R127 ,128                     |               |              | RS14GB3D561JMA    | FL-PROOF RS 560 J 3D           |                        |                    |
| RL1                           |               | *            | S51-2061-05       | REED RELAY                     |                        |                    |
| S1                            |               | *            | S90-0064-05       | ELECTROMAGNETIC SW (PHONE 1/2) |                        |                    |
| S2                            |               | *            | S90-0065-05       | ELECTROMAGNETIC SW (MM/MC)     |                        |                    |
| S3                            | 2B            | *            | S42-2082-05       | MULTIPLE PUSH SW (MM/MC)       |                        |                    |
| S4                            | 1D            | *            | S31-2059-05       | SLIDE SWITCH (PHONE IMPEDANCE) |                        |                    |
| S5                            | 2D            |              | S90-0038-05       | SLIDE SWITCH (REC OUT SELECT)  |                        |                    |
| S6                            | 2B            |              | S42-5033-05       | MULTIPLE PUSH SW (SELECTOR)    |                        |                    |
| D1 -3                         |               |              | 1S1555            | DIODE                          |                        |                    |
| D1 -3                         |               |              | 1S2076            | DIODE                          |                        |                    |

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| D4                    |               |              | 1S1555            | DIODE                   |                        |                    |
| D4                    |               |              | 1S2076            | DIODE                   |                        |                    |
| D5 ,6                 |               | *            | MA27W(A)          | VARISTOR                |                        |                    |
| △ D7 ,8               |               | *            | RD241(B3)         | ZENER DIODE             |                        |                    |
| D9 -12                |               |              | W06B              | DIODE                   |                        |                    |
| D13                   |               |              | 1S1555            | DIODE                   |                        |                    |
| D13                   |               |              | 1S2076            | DIODE                   |                        |                    |
| IC1 ,2                |               |              | TA2010A           | IC (EQ AMP)             |                        |                    |
| Q1 ,2                 |               |              | 2SK240(V)         | FET                     |                        |                    |
| Q5 -12                |               |              | 2SC2557(S,T)      | TRANSISTOR              |                        |                    |
| Q13 -16               |               |              | 2SK301(Q,R)       | FET                     |                        |                    |
| Q17 ,18               |               |              | 2SC2003(L,K)      | TRANSISTOR              |                        |                    |
| Q19 ,20               |               |              | 2SA954(L,K)       | TRANSISTOR              |                        |                    |
| Q21                   |               |              | 2SD313V-AL        | TRANSISTOR              |                        |                    |
| Q22                   |               |              | 2SB514(E,F)       | TRANSISTOR              |                        |                    |
| Q23 ,24               |               |              | 2SK105(H)         | FET                     |                        |                    |
| Q23 ,24               |               | *            | 2SK105A(2)        | FET                     |                        |                    |
| Q27 -30               |               | *            | 2SC945(A)(Q,P)    | TRANSISTOR              |                        |                    |
| Q31 ,32               |               | *            | 2SD571(L,K)       | TRANSISTOR              |                        |                    |
| Q33 -38               |               | *            | 2SC945(A)(Q,P)    | TRANSISTOR              |                        |                    |
| Q39                   |               |              | 2SA992(F,E)       | TRANSISTOR              |                        |                    |
| Q40 -44               |               |              | 2SC945(A)(Q,P)    | TRANSISTOR              |                        |                    |
| Q45 ,46               |               | *            | 2SD571(L,K)       | TRANSISTOR              |                        |                    |
| CONTROL (X11-1882-71) |               |              |                   |                         |                        |                    |
| C1 ,2                 |               |              | CQ93AP2A224J      | POLYPR0 0.22UF J        |                        |                    |
| C3 ,4                 |               |              | C91-0088-05       | POLYSTY 100PF K         |                        |                    |
| C5 ,6                 |               |              | CQ93FM1H333J      | MYLAR 0.033UF J         |                        |                    |
| C7 ,8                 |               |              | CQ93FM1H683J      | MYLAR 0.068UF J         |                        |                    |
| C9 ,10                |               |              | C91-0166-05       | POLYSTY 10PF D          | UMHUE                  |                    |
| C9 ,10                |               |              | C91-0166-05       | POLYSTY 10PF D          | XT                     |                    |
| C9 ,10                |               |              | C91-0170-05       | POLYSTY 22PF K          | E                      |                    |
| C11 ,12               |               |              | CK45FB1H152K      | CERAMIC 1500PF K        | UMHUE                  |                    |
| C11 ,12               |               |              | CK45FB1H152K      | CERAMIC 1500PF K        | XT                     |                    |
| C11 ,12               |               |              | CK45FB1H222K      | CERAMIC 2200PF K        | E                      |                    |
| C13 ,14               |               |              | C91-0095-05       | POLYSTY 390PF J         |                        |                    |
| C15 ,16               |               | *            | CK45FB1H272K      | CERAMIC 2700PF K        | E                      |                    |
| C15 ,16               |               |              | CK45FB1H681K      | CERAMIC 680PF K         | UMHUE                  |                    |
| C15 ,16               |               |              | CK45FB1H681K      | CERAMIC 680PF K         | XT                     |                    |
| C17 ,18               |               |              | C91-0090-05       | POLYSTY 150PF J         | UMHUE                  |                    |
| C17 ,18               |               |              | C91-0090-05       | POLYSTY 150PF J         | XT                     |                    |
| C17 ,18               |               |              | C91-0095-05       | POLYSTY 390PF J         | E                      |                    |
| C19 ,20               |               |              | CC45FSL1H470J     | CERAMIC 47PF J          |                        |                    |
| C21 -26               |               |              | CQ93FM1H334J      | MYLAR 0.33UF J          |                        |                    |
| C27 -30               |               |              | CQ93FM1H562J      | MYLAR 5600PF J          |                        |                    |
| C37 ,38               |               |              | CC45FSL1H101J     | CERAMIC 100PF J         |                        |                    |
| C39 ,40               |               |              | CQ93FM1H102J      | MYLAR 0.001UF J         |                        |                    |
| C41 ,42               |               |              | CC45FSL1H220J     | CERAMIC 22PF J          |                        |                    |
| C43 ,44               |               | *            | CE04HW1E470MEL    | NP-ELEC 47UF 25WV       |                        |                    |
| C45 ,46               |               |              | CC45FSL1H101J     | CERAMIC 100PF J         | E                      |                    |
| C47 ,48               |               | *            | CQ93FM1H273J      | MYLAR 0.027UF J         |                        |                    |
| C71 ,72               |               |              | CK45FF1H103Z      | CERAMIC 0.01UF Z        |                        |                    |
| C73                   |               |              | CK45FB1H152K      | CERAMIC 1500PF K        |                        |                    |
| C74                   |               |              | CC45FSL1H470J     | CERAMIC 47PF J          |                        |                    |
| C84 ,85               |               |              | CK45FF1H223Z      | CERAMIC 0.022UF Z       |                        |                    |

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|--|----------------------|-------------------|--|--|---------------------------|--------------------|
| C86<br>C87                                       |                      |                   | CK45FB1H102K<br>CK45FF1H223Z   | CERAMIC 0.001UF K<br>CERAMIC 0.022UF Z   |                           |                    |
| -<br>-   |                      |                   | E13-0213-05<br>E23-0125-05   | PHONE JACK<br>TERMINAL   |                           |                    |
| R1 ,2<br>R3 ,4<br>R5 ,6<br>R13 ,14<br>R15 ,16    |                      |                   | RN14DK2E472JHD<br>RN14DK2E331JHD<br>RN14DK2E562JHD<br>RN14DK2E101JHD<br>RN14DK2E274JHD | RN 4.7K J 2E<br>RN 330 J 2E<br>RN 5.6K J 2E<br>RN 100 J 2E<br>RN 270K J 2E   |                           |                    |
| R37 ,38<br>R39 ,40<br>R41 ,42<br>R47 ,48<br>R123 |                      | *                 | RN92BC2E301F<br>RN92BC2E162F<br>RN92BC2E151F<br>RN14DK2E101JHD<br>RD14GB2E150J         | RN 300 F 2E<br>RN 1.6K F 2E<br>RN 150 F 2E<br>RN 100 J 2E<br>FL-PROOF RD 150 J 2E  |                           |                    |
| R128<br>R129<br>R130                             |                      |                   | RS14GB3A471JMA<br>RS14GB3D331JMA<br>RS14GB3D391JMA                                     | FL-PROOF RS 470 J 3A<br>FL-PROOF RS 330 J 3D<br>FL-PROOF RS 390 J 3D   |                           |                    |
| VR1<br>VR2                                       | 3B<br>2B             | *                 | R06-5098-05<br>R11-9015-05   | POTENTIOMETER (CLICK) BALANCE<br>POTENTIOMETER VOLUME CONTROL  |                           |                    |
| VR3 ,4<br>VR5 ,6                                 | 2B                   |                   | R06-3032-05<br>R12-0502-05   | POTENTIOMETER (CLICK) BASS, TREB<br>TRIMMING POT. 100 (OFFSET)   |                           |                    |
| RL1<br>S1<br>S2<br>S3<br>S4                      | 2B<br>2B<br>2B<br>2B | *                 | S51-2041-05<br>S42-2082-05<br>S29-2026-05<br>S29-2025-05<br>S42-3064-05                | MAGNETIC RELAY<br>MULTI. PUSH SW (MODE, SUBSONIC)<br>ROTARY SWITCH (LOUD LEVEL)<br>ROTARY SWITCH (LOUD FREQ)<br>MULTI. PUSH SW (TONE, FREQ SW) |                           |                    |
| S5<br>S6   | 3B<br>3B             |                   | S40-1065-05<br>S40-2122-05   | PUSH SWITCH (FADER)<br>PUSH SW (AUX/DAD FRONT/REAR)  |                           |                    |
| PHC1   |                      |                   | T95-0006-05  | OPTO ISOLATOR  |                           |                    |
| D1 ,2<br>D3 -6<br>D3 -6<br>D3 -6<br>D3 -6        |                      |                   | RD5.6J(B1)<br>1N60<br>1S1555<br>1S1555<br>1S2076                                       | ZENER DIODE<br>DIODE<br>DIODE<br>DIODE<br>DIODE  | E<br>UMHUE<br>XT<br>UMHUE |                    |
| D3 -6<br>D11 -21<br>D11 -21<br>D22<br>D23 ,24    |                      | *                 | 1S2076<br>1S1555<br>1S2076<br>RD8.2J(B2)<br>WZ-135                                     | DIODE<br>DIODE<br>DIODE<br>ZENER DIODE<br>ZENER DIODE  | XT                        |                    |
| D25 ,26<br>D27 ,28<br>D27 ,28<br>IC1 ,2<br>IC3   |                      | *                 | BZ-197<br>1S1555<br>1S2076<br>TA7322P<br>NJM2041D-D                                    | ZENER DIODE<br>DIODE<br>DIODE<br>IC (FLAT AMP)<br>IC (TONE AMP)  |                           |                    |
| IC4<br>IC4<br>Q1 ,2<br>Q3 -6<br>Q7 ,8            |                      | *                 | TC4027BP<br>UPD4027BC<br>UPA68H(L,M)<br>2SC1845(F,E)<br>2SC2291(F,G)                   | IC (J-K FLIP-FLOP)<br>IC (J-K FLIP-FLOP)<br>DUAL FET<br>TRANSISTOR<br>DUAL TRANSISTOR  |                           |                    |
| Q11 ,12<br>Q11 ,12<br>Q13                        |                      |                   | 2SC2320(E,F,G)<br>2SC945(A)(P,K)<br>2SC945(A)(Q,P)                                     | TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR   |                           |                    |

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| Ref. No.<br>参照番号                            | Address<br>位置 | New<br>Parts<br>新 | Parts No.<br>部品番号  | Description<br>部品名 / 規格  | Desti-<br>nation<br>仕向 | Re-<br>marks<br>備考 |
|---|---------------|-------------------|--|--|------------------------|--------------------|
| Q14<br>Q15 ,16<br>Q17 ,18<br>Q17 ,18<br>Q19 |               |                   | 2SA733(A)(Q,P)<br>2SC945(A)(Q,P)<br>2SC2320(E,F,G)<br>2SC945(A)(P,K)<br>2SC945(A)(Q,P) | TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR |                        |                    |
| Q20<br>Q21<br>Q22<br>Q23                    |               |                   | 2SC2003<br>2SC1845(F,E)<br>2SC2167<br>2SC945(A)(Q,P)                                   | TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR               |                        |                    |

E: Scandinavia & Europe H: Audio Club K: USA P: Canada  $\Delta$  indicates safety critical components.  
S: South Africa T: England U: PX(Far East, Hawaii)  
UE: AAFES(Europe) X: Australia M: Other Areas

## Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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